

Opinions of Maryland State Police Officers on Traffic Accident Causes and Prevention

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APPROXIMATELY 40 percent of all accidental deaths in Maryland are caused by motor vehicle accidents. Activities in accident prevention have long been an integral part of programs of the Maryland State Department of Health. A technical advisory committee to the department's accident prevention section, established by the Commissioner of Health, advises the department in the development of its accident prevention programs. This committee is composed of representatives of the State Police, department of motor vehicles, department of mental hygiene, State medical examiner's office, the Medical and Chirurgical Society, the University of Maryland, the State legislative council, and the department of health. Since traffic accidents constitute a major public health problem, priority has been given to traffic safety.

Our 1963 study was an initial project of the department's traffic safety research program. The immediate objective was to assess the opinions of the Maryland State Police on various aspects of traffic accidents and methods of implementing effective safety programs. State Police officers are knowledgeable in traffic safety as a result of their training and direct experience with traffic accidents. They are often at the scene of an accident and must arrive at some understanding of its cause. What does this group of experts believe about traffic accidents,

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safety programs, and drivers? A search of the literature has revealed no previous study of their opinions.

The longer range objectives of our traffic safety research program were:

1. To assess the opinions on traffic accidents of groups of persons directly involved in traffic safety programs.
2. To ascertain whether the opinions of the surveyed persons were consistent and similar, and if not in what way they differed.
3. To study the relation between expressed opinions and official traffic accident reports.
4. To help the department of health establish priorities for its programs in traffic accident prevention and to provide information to other State agencies interested in traffic safety.

The study of traffic accidents involves a multitude of interrelated factors (1-3). Seeking "basic causes" or expecting "basic solutions" is illusory. Drivers and nondrivers hold diverse opinions on causes of accidents, their prevention, the value of safety devices, and so on. Every driver has his own pet theory.

Several findings of interest were obtained from a major survey of public attitudes (4). A cross section of the general population was questioned, and approximately 3,600 persons responded. Speed and alcohol were reported as the major causes of accidents, and stricter enforcement of traffic regulations was suggested as the best method to control the accident rate. The study indicated that traffic accidents are considered by the public to be a serious problem and that the public is ready to support accident prevention programs.

The New Jersey Bureau of Traffic Safety

conducted a statewide public opinion poll on traffic safety (5). Questionnaires were distributed by the Boy Scouts throughout the State. New Jersey drivers were reported to be aware of and concerned about the traffic problem. They rated driving while under the influence of alcohol as the most serious traffic violation. Lack of consideration for other drivers was listed as the most common driver fault. Ninety-seven percent of the drivers listed themselves as equal to or better than most drivers. This study points to several biases in public opinion responses to traffic safety questionnaires. Most drivers considered that they were good if not the best drivers and therefore were not personally concerned with the need for education and stricter enforcement. They also thought stricter enforcement of traffic laws was needed and that most if not all other drivers were discourteous, inconsiderate, and generally bad drivers who needed education.

A serious drawback to public opinion polls, then, is that the public feels "insulated" from accidents. Nine of 10 drivers rate themselves above average and resent the suggestion that they do not drive safely, and 82 percent of drivers involved in traffic accidents blame the other motorist (1a). Only 1 in 100 admits that he is a poor driver (1b). The public's attitude toward traffic accidents and safety therefore is extremely biased. Freeman and associates (1) also reported that complacency is a significant human factor in accident prevention.

Gordon (6) and Iskrant (7) have developed epidemiologic models for accident studies that may serve to identify the variables involved. In the study of traffic accidents, the three factors to be investigated are the host (the human), the agent (the car), and the environment (roads, weather conditions, and so forth).

Survey Methods

The superintendent of the Maryland State Police is a member of the technical advisory committee of the accident prevention section, Maryland State Department of Health. The proposal to interview State Police officers was first reviewed and approved by the superintendent and subsequently supported by this advisory committee.

We believed that an unstructured questionnaire would best satisfy the requirements of our study. Multiple-choice items and true and false questions were considered too restrictive to permit the freedom of thought and expression desired. Our two-page questionnaire consisted of seven questions. We modified the original questions after pilot testing.

The following instructions and questionnaire were given to the State Police barracks commanders at one of their monthly meetings. The questionnaires were then distributed to all members of the State Police through official channels. The completed questionnaires, at our request, were returned by mail directly to the accident prevention section. The only personal information requested of the respondent was that he identify the county in which he was serving and the length of time he had been with the department.

Instructions

The Maryland State Department of Health is conducting a survey on traffic accidents. We are interested in learning your opinions concerning the present traffic accident situation and your recommendations for reducing the accident rate in the State of Maryland.

We would like you to answer the questions on the attached questionnaire as completely and as honestly as you can. We want your personal opinions and answers to these questions. Feel free to write anything or make any suggestion you wish. Do not be concerned about giving right or wrong answers; people differ in their opinions. As police officers you have personal experience in traffic safety and with accident situations which most people do not have, and we would like to see this valuable knowledge and experience used to improve the State's traffic safety program.

This is an anonymous questionnaire. You need not identify yourself on the form. We do request that you identify the organization and county you are associated with and indicate the number of years you have been on the force.

Questionnaire

1. In your opinion, what are the four primary causes of traffic accidents? What solutions or answers could you suggest for each of these major causes of accidents?
2. If you were responsible for issuing drivers' licenses, what would you want to know about a person before you granted him a license?
3. If you were responsible for planning Maryland's traffic safety program, what actions would you take to prevent accidents and reduce deaths and injuries?
4. In your opinion, what are the major obstacles to putting an effective traffic safety program into operation?

5. What chance do you feel there is for a significant reduction in the traffic accident rate by 1965?

6. In your opinion, what aspects of traffic accidents (their causes and prevention) are not well understood and need further study and research?

7. Please add any other comments you may have about the traffic situation and accident prevention not mentioned above.

The responses to questions 6 and 7 reflected the whole gamut of problems in traffic safety and were for the most part repetitious responses to other questions. We therefore omitted them from our analysis.

Results

A total of 370 Maryland State Police officers completed the questionnaires, or approximately 65 percent of the 570 in the survey group. The responses came from officers of all ranks in the organization. Few of their answers were of the one-word or one-phrase type. The police officers clearly accepted the questionnaire as a part of a meaningful survey and spent considerable time and effort in completing the form.

Table 1 gives the breakdown of counties served by the respondents and years of service in the police organization. Responses were re-

Table 1. Survey of Maryland State Police

Counties served and years of service	Number of officers
<i>Counties served</i>	
Baltimore.....	81
Montgomery.....	8
Anne Arundel.....	19
Prince Georges.....	32
Howard, Carroll, Frederick.....	51
Worcester, Somerset, Wicomico, Dorchester.....	18
Caroline, Talbot, Queen Annes, Kent.....	21
Harford, Cecil.....	23
Charles, St. Marys, Calvert.....	40
Washington, Allegany, Garrett.....	38
Unknown.....	39
Total.....	370
<i>Years of service</i>	
0-2.....	82
3-5.....	85
6-8.....	61
9-11.....	18
12-15.....	16
16-20.....	32
21 and more.....	29
Unknown.....	47
Total.....	370

ceived from officers with approximately 3,000 man-years of service and a wide range of experience in traffic safety. Ninety-five men had been in the organization for more than 9 years. The regions served by these officers encompass a variety of driving environments including the densely populated metropolitan areas of Baltimore, Md., and Washington, D.C., the rural counties of Maryland's Eastern Shore, and the mountainous areas of western Maryland.

Table 2 lists the responses to the question concerning the four primary causes of traffic accidents. Four causes of accidents, ranked in order of importance, were to be identified. Only 32 respondents failed to mention a total of 4 causes, and all but 9 identified at least 3 causes. Speed was mentioned most frequently as the most important cause of accidents, followed by inattention, alcohol, and human error (unexplained) in that order. Speed was mentioned more than twice as often as the second place cause, inattention.

Alcohol was mentioned most often as the second, third, and fourth ranking causes of accidents. Thus while ranking only a poor third as a most important cause, alcohol was listed often enough to rank second when all the responses were totaled. In order of total frequency were speed, alcohol, inattention, and failure to yield the right of way.

Several causes identified by the State Police officers related to specific driving errors; for example, failure to yield right of way, improper passing and turns, and following too closely. Other causative factors mentioned, such as inattention, recklessness, carelessness, lack of courtesy, attitudes, temperament, and emotion, are complex. Each may result from the influence of multiple underlying factors.

The officers indicated that from experience and training they considered certain causes to be significant. Their observations concerning causes perhaps give clues to the areas in which preventive actions are needed, as well as identify the subjects that need further investigation and study to understand better some of the underlying factors in accidents.

It is interesting to note that the categories of carelessness, recklessness, lack of courtesy, public apathy or "it can't happen to me," and attitudes, temperament, emotion (personality) were

mentioned infrequently by the police officers as important causes of accidents. The so-called accident-prone person does not appear to be an identifiable significant response. It is recognized that attitudes, temperament, and emotions (personality) may produce some of the specific errors identified. Emotional and personality factors may, for example, result in speeding, drinking, improper passing, and other errors in judgment while driving a motor vehicle.

The category relating to highway and road conditions, including poor traffic signs, was mentioned only 40 times and ranked ninth in frequency. The category of faulty vehicle was mentioned 38 times and ranked 10th. From the responses, it is clear that the State Police officers consider human error as significantly more important as a cause of accidents than highway and road conditions or unsafe vehicles.

The emphasis on human-error factors, as shown in the following tabulation, points out the great significance given to these causes by the officers. The human variable is not absent in speed and alcohol: the speed of the vehicle is driver determined, as is the intake of alcohol. Speed and alcohol may therefore be viewed as second-order human factors that can lead to

higher accident risks. Highway conditions and faulty vehicles are clearly nonhuman variables, and they received comparatively low ranking in this survey.

<i>Causes</i>	<i>Number of times mentioned</i>
Combined human factors.....	1, 333
Human error.....	712
Speed.....	331
Alcohol.....	290
Highway.....	40
Faulty vehicle.....	38
Other.....	37
Total.....	1, 448

Stricter enforcement of traffic laws and heavier penalties were suggested most frequently to prevent accidents. Driver education was listed third. The combined number of times driver education and public education were mentioned reflects the importance that the officers placed on an education program. Driver education and public education combined were mentioned nearly as often as stricter enforcement.

It is interesting that although speed was mentioned most frequently as a cause of accidents, solutions relating to speed laws received little attention. We infer from this that, in the

Table 2. Opinions of Maryland State Police officers on causes of accidents, in order of importance

Cause	Rank in importance				
	First	Second	Third	Fourth	Total
Human error:					
Inattention.....	76	33	29	27	165
Failure to yield.....	11	44	40	28	123
Following too closely.....	6	19	31	35	91
Ignorance, disregard for law.....	7	16	26	30	79
Unqualified, untrained, inexperienced drivers.....	6	11	14	30	61
Recklessness.....	0	5	15	13	33
Carelessness.....	9	7	7	5	28
Improper passing and turns.....	0	5	13	10	28
Lack of courtesy.....	4	5	3	4	16
Attitudes, temperament, emotion.....	2	2	2	6	12
Public apathy, "can't happen to me".....	2	1	3	4	10
Unexplained.....	31	8	12	15	66
Speed.....	162	93	53	23	331
Alcohol.....	47	106	84	53	290
Highway, road conditions.....	2	4	15	19	40
Faulty vehicle.....	1	1	5	31	38
Politics, magistrate system.....	4	6	3	5	18
Other.....	0	3	7	9	19
Unstated.....	0	1	8	23	32
Total.....	370	370	370	370	1, 480

opinion of the officers, existing speed laws in Maryland are considered adequate and that what is needed is stricter enforcement of existing laws combined with an education program. Although stricter enforcement was thought to be important, most of the officers did not think that more State Police personnel were necessary to bring this about.

Although alcohol was mentioned second most frequently as a cause of accidents, a mandatory test for alcohol (implied consent law) was not frequently suggested by the police officers as a solution to the traffic accident problem.

Improved traffic signs, roads, and highway conditions and the initiation of a vehicle inspection program were mentioned far less often than solutions relating directly to the driver. Concern for the environment and the vehicle was secondary to the concern the officers had for the driver. This finding is consistent with previous reports (8).

Solutions to traffic accident causes were listed in the following order of importance by the Maryland State Police:

<i>Solutions</i>	<i>Number of times mentioned</i>
Stricter enforcement.....	314
Heavier penalties.....	274
Driver education.....	264
Improved magistrate system, courts, politics.....	89
Better traffic signs, roads, highway conditions.....	81
Mandatory blood or breath test, implied consent.....	56
More public education, publicity.....	44
More State Police.....	40
Vehicle inspection.....	39
Better speed laws.....	15
Other.....	95
Total	1,311

Physical and medical status was reported as the single most important variable in issuance of drivers' licenses. However, if the mental status or intelligence factor were combined with the attitude or temperament factor, they would rank first in significance. The importance of the psychological factors is clearly demonstrated. The State Police responses reflect the opinion that attitudes and mental factors are more significant than physical status. Knowledge of the car and the road was considered secondary to both the intellectual and personality factors and the physical and medical status of the driver.

Age of the driver was not considered a factor

of great importance. The use of drugs and alcohol was mentioned relatively few times, which may reflect a recognition of the difficulties encountered in obtaining valid or useful information concerning the use of drugs and alcohol in a driver licensing program. Previous driving record was mentioned relatively few times. The State Police gave the following opinions, in order of frequency, on the variables relevant to driver licensure:

<i>Driver licensure variables</i>	<i>Number of times mentioned</i>
Physical and medical status.....	197
Attitude, temperament.....	165
Mental status, intelligence (unexplained).....	122
Knowledge of car and road, driving laws.....	110
Driver training.....	62
Previous driving record.....	62
Age.....	41
Use of drugs and alcohol.....	36
Identification information (photograph, fingerprints).....	27
Reexamination (person).....	19
Employment.....	6
Other.....	23
Total	870

The actions that the individual State Police officer would take if he were responsible for directing Maryland's traffic safety program include several significant issues. An adequate magistrate or traffic court system and the removal of politics from the traffic safety program are seen as the first essential measures. Heavier penalties to be imposed on traffic violators was the second most frequently mentioned action. Stricter enforcement was the third most frequent response, and driver education was fourth. Education as a safety program activity would rank first, however, if driver education and public education were combined. The following opinions, in order of frequency, were given by the State Police on the development of traffic safety programs:

<i>Suggested safety programs</i>	<i>Number of times mentioned</i>
Improve magistrate system, courts, politics.....	111
Heavier penalties.....	104
Stricter enforcement.....	102
More driver education.....	102
Improve highways and traffic laws.....	93
More public education.....	79
Seat belts, other safety devices.....	40
Increase number of policemen.....	37
Car inspection.....	31
Age factors.....	23
Periodic examination of drivers.....	17
Other.....	42
Total	781

The obstacles to putting an effective traffic safety program into operation were ranked as follows: first, public apathy; second, the magistrate system; third, politics; and fourth, financing. In tabulating the responses to the question on safety program suggestions, we combined magistrate system and politics, but because the two were mentioned frequently in answering the question on obstacles to traffic safety programs, they were coded separately. The magistrate system and politics were viewed by the State Police as the primary obstacles to implementation of an effective traffic safety program. Enforcement of the law and penalties for violations are closely related to the judicial system. Shortcomings in the magistrate system and the influence of political pressures were seen as the most serious obstacles in dealing with the traffic accident problem. Poor enforcement per se, lack of police, and the complexity of laws were not considered to be obstacles of major importance. Inadequate funds and the lack of legislative support were considered to be secondary obstacles to the inadequacies of the courts and the influence of politics.

Public apathy was seen by the respondents as the most significant single obstacle to implementation of an effective safety program. The public was seen as not sufficiently concerned with the problem of traffic accidents to adequately support an effective traffic safety program. Public apathy may also be reflected in several other obstacles cited, such as an inadequate magistrate system, politics, and inadequate financial and legislative support. The following opinions, in order of frequency, were listed by the State Police as obstacles to the implementation of effective safety programs.

<i>Obstacles to traffic safety programs</i>	<i>Number of times mentioned</i>
Public apathy.....	172
Magistrate system, courts.....	96
Politics	93
Finance	68
Lack of legislative support.....	52
Poor enforcement of laws.....	28
Lack of police.....	25
Unknown	24
Other	17
Complexity of laws and poor planning.....	12
Total	587

State Police responses to the question concerning the traffic accident rate in Maryland

showed little expectation of a significant reduction. Approximately two-thirds of the respondents were of the opinion that there is less than a 50 percent chance of a reduced number of accidents. Nearly half of the responses indicated no chance of a reduction—a rather pessimistic and somewhat alarming finding. The obstacles to improvement in the traffic accident rate seemed overwhelming to these officers, as seen in the following tabulation:

<i>Chance of reducing rate (percent)</i>	<i>Number of times mentioned</i>
0 to 9.....	161
10 to 19.....	19
20 to 29.....	22
30 to 39.....	16
40 to 49.....	6
50 to 59.....	90
60 to 69.....	0
70 to 79.....	3
80 to 89.....	4
90 to 100.....	13
Unknown	2
Unstated	34
Total	370

Summary and Conclusions

Data obtained by the Maryland State Department of Health reflect the opinions and attitudes, as elicited by questionnaire, of 370 Maryland State Police officers (nearly two-thirds of all the State Police in Maryland) with a total of approximately 3,000 man-years of experience as officers. Although general in nature, the results of this survey point to several significant issues.

A major finding of this study is the great emphasis placed by the police officers on host factors. Human errors were reported to be the primary cause of accidents, and public apathy was reported to be a major reason for apparent inability to effect a sound safety program. Relatively little weight was given to agent (vehicle) or environmental (highway condition) factors. Of special concern were personality and attitudinal factors. More emphasis was given to these variables than to specific sensory-motor or other physical capabilities. Yet it is on sensory-motor capacities that current efforts are based in the issuance of drivers' licenses.

A second major finding is the great concern expressed for the current inadequate magistrate

system. In the opinion of the State Police officers, the present system is inadequate and impairs the effectiveness of the traffic safety program. Suggestions for heavier penalties and stricter enforcement are closely linked to the comments concerning the magistrate system.

Driver and public traffic safety education programs were strongly emphasized. The focus on education reflects concern in several areas: (a) the development of driving skills and safe driving habits through a program of driver training, (b) the mobilization of public support for programs designed to improve traffic safety, and (c) the development of attitudes reflecting a sense of responsibility for personally driving in a safe manner through a public education program.

Another significant finding in this study is the relative degree of pessimism expressed by the officers about the possibility of a significant reduction in traffic accidents. The overwhelming consensus was that there is little hope of reducing the rate—a serious indictment of current safety efforts.

Another serious concern was public apathy, which was reported to be the most significant obstacle to the implementation of an effective traffic safety program. Despite the great annual death and injury toll, in the view of most of these officers the public remains relatively unconcerned. This judgment does not coincide with the findings of the National Safety Council and New Jersey public opinion polls. In these studies the public was reported to be con-

cerned and ready to support traffic safety activities.

The responses of the Maryland State Police officers strongly suggest the need to evaluate the attitudinal aspects of the driver, directed toward the identification of those personality or attitudinal factors that are related to the higher risks of accidents. The data also suggest the need of assessing the reasons for the police officers' beliefs that the public is relatively apathetic about traffic safety.

REFERENCES

- (1) Freeman, F., Goshen, C., and King, B.: The role of human factors in accident prevention. U.S. Public Health Service, Washington, D.C., August 1960. Mimeographed; (a) p. 58; (b) p. 59.
- (2) Norman, L.: Road traffic accidents. Public Health Paper No. 12. World Health Organization, Geneva, 1962.
- (3) President's Committee for Traffic Safety: Research. U.S. Government Printing Office, Washington, D.C., 1963.
- (4) National Safety Council: The public's attitude on traffic safety. Opinion Research Corporation, Princeton, N.J., 1946.
- (5) New Jersey Division of Motor Vehicles: New Jersey's public opinion poll on traffic safety. Trenton, 1958.
- (6) Gordon, J.: The epidemiology of accidents. *Amer J Public Health* 39: 504-515 (1949).
- (7) Iskrant, A. P.: Accident mortality data as epidemiologic indicators. *Amer J Public Health* 50: 161-172, February 1960.
- (8) Spicer, B.: Human factors in traffic accidents; final report 1964. Hawaii Department of Health, Honolulu.

Conference Calendar

November 7-9, 1966. Association of Military Surgeons of the United States, Washington, D.C.

November 8-10, 1966. American Federation of Information Processing Societies and the Joint Computer Conference, San Francisco.

November 12-13, 1966. American Association of Public Health Dentists, Dallas.

November 13-15, 1966. Conference on Education in the Neurological Sciences, White Sulphur Springs, W. Va.

November 14-17, 1966. American Dental Association, Dallas.

November 14-19, 1966. National Association

for Mental Health, New Orleans.

November 27-30, 1966. American Medical Association (Clinical), Las Vegas, Nev.

November 28-29, 1966. National Social Welfare Assembly, New York.

December 12-14, 1966. National Conference on Air Pollution, Washington, Sheraton Park Hotel. Information: Arthur C. Stern, Assistant Chief, Division of Air Pollution, Public Health Service, Washington, D.C. 20201.

December 16-18, 1966. American Association for the Advancement of Science, Washington, D.C.